CITY COUNCIL REPORT

DATE: 18 December 2015

TO: Mayor and Councilmembers

FROM: Paul Summerfelt – Flagstaff Fire Department

CC: Josh Copley, Barbara Goodrich, Leadership Team

SUBJECT: Observatory Mesa Hazardous Fuel Thinning

Overview: In the past month, we've received five inquiries regarding the forest treatment work on Observatory Mesa Natural Area (OMNA). Specifically, it relates to the 475-acre harvesting unit in Section 18 assigned to Perkins Timber Harvesting, Inc. Of the five, two had questions which I believe have been addressed; one individual was concerned by what they had heard, but upon discussion, is now satisfied there is nothing to be alarmed about. Two individuals have continued to lodge serious and continuing assertions regarding the execution and motive of the project.

Status of Work:

- From Jan - June 2015, we completed a comprehensive site inventory, mapping effort, and robust Forest Stewardship Plan for the entire 2,300 acre OMNA.
- During Plan development, the OMNA Stakeholder Group was briefed on at least one occasion: no concerns were raised that required a change in either the plan or the work to be done.
- A 40-acre demonstration unit was marked (leave trees marked with yellow paint) in order to brief potential contractors as to the Desired Future Condition (DFC) - post-treatment - that we were looking to create throughout the project area.
- Two potential contractors bid on the work: Perkins was selected: contract was approved by Council and he was issued a *Notice To Proceed* on July 28th.
- We secured two grants from AZ State Forestry that provided 50% of the required funding.
- Perkins began work on the parcel in early August. They completed cutting on Nov 23rd, and removal of all logs on Dec 7th. 455 acres have been chipped: 267 acres of chips have been hauled off. We are now in a winter shutdown - temporary roads have been closed and rehabbed - and will complete the remaining 188 acres of chip removal next spring.

Concerns Expressed

- The work is out-of-alignment/not in sync with professional and recognized standards. The work is based upon credible and proven science-based forest restoration and hazard fuel management standards and knowledge. It adheres to guidelines established in the Greater Flagstaff Area Community Wildfire Protection Plan (City & County - 2005), is consistent with forest treatments designed and implemented by the Greater Flagstaff Forests Partnership (1999-present) and the City of Flagstaff Wildland Fire Management program (1998-present), meets the goals of the State of AZ 20-Year Strategy (2007), is consistent with the required actions identified in both the initial and final Observatory Mesa Forest Stewardship Plan (2013 and 2015, respectfully) and both the Four Forests Restoration Initiative's and the Flagstaff Watershed Protection Project's Final Records of Decision (USFS - 2015), and meets grant requirements for post-treatment conditions.

  The practices we've employed to reduce hazardous fuels and restore ecological function are highly effective in slowing/reducing fire spread and intensity and in improving forest health and sustainability. Within-and-adjacent-to our own community, the Woody Fire [2006], Hardy fire [2010], and Slide fire [2014], demonstrate the value of such an approach: each of these threatening wildfires burned toward-and-into previously treated areas, greatly reducing fire impacts and allowing for safe, effective, and cost-efficient suppression operations to occur.

- The work has been planned and is being conducted without involvement of other reputable entities. The principle authors of the Forest Stewardship Plan were AZ State Forestry Division. AZ Game & Fish Department, US Fish & Wildlife Service, and NAU's Ecological Restoration Institute provided input and review. The Nature Conservancy, Greater Flagstaff Forests Partnership, US Forest Service, Campbell Global, private consultants, and NAU's School of Forestry have all been on-site during operations and have provided feedback.

- The work has been conducted without public knowledge. The contract was issued following acceptance by Council at a regularly scheduled meeting. The work was conducted roughly six-of-every seven days over a three month period (Perkins was off-site for 3+ weeks during Sept). Both impromptu and announced field trips were conducted, most recently during the Festival of Science: OMNA stakeholder members, city staff, and Council members were also given tours. Both City staff and the contractor interacted with numerous individuals hiking, running, or biking through the area throughout the duration of the field work. Information boards were established where the Urban Trail crosses the site, and where roads enter the parcel.

- The city has been absent and has failed to provide contract oversight: Mark Brehl - FWPP Operations Specialist - spent roughly 75% of every work week, throughout this project, whether on-site working with the contractor and his employees or in direct contact with them. This included after hours, weekends, and holidays. He oriented and trained the operators regarding the 40-acre demo area and the desired results, walked the day's cutting areas with them to ensure they understood intent, adjusted the prescription to meet operational realities, laid out the temporary roads, approved completion of individual units before permitting movement into new ones, mapped progress, monitored wood and chip removal, and approved payments.

- The contractor was operating outside the parameters of the contract. This is based upon one "forestry official", who remains unknown and unfound, telling one person that the contractor was operating "outside the contract directives". The contractor operated completely within the parameters of the contract and scope of work, met all project management required actions, and was very engaged with Staff throughout the duration of the operation.

- Standing dead snags have been cut and removed. Standing dead snags are important to many wildlife species, and as such, we routinely retain them provided they are not a public safety hazard. Within this project area, however, there were very few on-site before work commenced: virtually all that were present were retained.

- Habitat for many species of wildlife has been destroyed. The purposeful inclusion of the State's Game & Fish Department and the US Fish & Wildlife Service was done in order to ensure this did not occur.

  Hannah Griscom, Urban Wildlife Planner for the AZ Game & Fish Department, aid in response to hearing this concern, "[Our agency] is quite happy with the collaboration we had with [the City and Fire Department} on the Observatory Mesa thinning work".

  The use of an area by some species does change following treatment operations: other species use, however, increases. Deferral areas (areas left in their pre-treatment state - no cutting occurred) were identified and left in-tact scattered throughout the area, for the sole purpose of retaining rest-and-cover areas for some wildlife species. Personal observations during the treatment work have identified elk, deer, songbirds, squirrels, hawks, antelope, and coyotes on-site, often within site of the on-going operation itself.

  As an aside, in 2010, during the City's Airport Project forest treatment, the Greater Flagstaff Forests Partnership paid $6,000 to AZ Game & Fish staff to conduct a "Winter Core Area" study for Abert Squirrels. The squirrels living in that area were live-trapped, radio-collared, and tracked beginning before treatments commenced, and continuing until they were completed in order to develop critical acreage-size parameters required by the squirrel s for winter survival. The results of that study were incorporated into this project.

- Soil damage has occurred, and erosion is likely. Soil impacts do occur anytime machinery and other equipment is required to operate, an inevitable part of any mechanical forest treatment. As Dr. Covington has so eloquently stated "we just can't levitate trees from the forest".

  Our forest treatments are designed to prevent the irreversible loss of soil and very damaging effects of flooding following a catastrophic wildfire, much like that experienced in the aftermath of the 2010 Schultz Fire. To mitigate soil compaction and erosional concerns during and following field operations, we:
  - Spent considerable time with USFS staff, representatives from Kinder-Morgan, and the Snowbowl, to clarify rights-of-way and pipeline locations and develop, where needed, necessary standards to avoid damage;
  - Utilized old, existing skid and transportation roadbeds wherever possible (there was a pre-existing network of these old roadbeds across the parcel, dating back to one of the six known previous harvests that have occurred on this site since the early 1900's);
  - Limited crossing of the Urban Trail to one location (which has been rehabbed prior to the winter shutdown, and which will receive final corrective action following removal of all chip piles next summer);
  - Totally avoided mechanical forest treatments or use of any existing roads on the slopes at the south end of the Mesa (area leading down toward the railroad tracks);

- Restricted truck traffic (vehicle and equipment ingress/egress, and hauling of logs and chips), to one designated route from A-1 Mountain Rd all the way onto the parcel itself;
- Had the contractor obtain a Permit from the USFS for that portion of the route across USFS jurisdiction;
- Required contractor to periodically blade/maintain the primary access route to avoid rutting, or widening, of the roadbed by both project and public traffic;
- Required log trucks to stage approximately one-mile from the project area to avoid congestion and additional truck traffic on-site;
- Stopped work on-site when conditions threatened to, or became, too wet to operate without causing damage (either on the roads themselves, or at landings and loading sites);
- Closed the primary access route by blocking with boulders when we entered winter shutdown; and
- Rehabbed temporary roads by knocking down berms and scattering slash and debris into the roadbed.

Consistent with other projects in the area, we expect that within a short period of time (typically one growing season), remaining visible impacts are softened by weather, and grass growth begins to hide and blur what remains.

- <u>This was a purely commercial logging operation, as opposed to a thinning operation, with a focus on profit.</u> This was not a traditional timber sale whereby a contractor "pays" for the privilege of cutting and removing wood: The wood had no such value. This was a stewardship contract, whereby we pay for the finished product. Here, the finished product was a restored forest, where fire and insect threat has been reduced, by-products and debris have been removed, and visible signs of operational activity have been addressed and are being allowed to fade away.

  Large-acreages require the use of mechanical equipment, if for no other reason than productivity and speed. Had this work been done as a typical handcrew operation, it could easily have extended for upwards of two seasons, and we would have been unable to manage the resulting material.

This is not to imply that in conducting such work some economically valuable trees or biomass are not removed. In fact, that is encouraged: it helps offset some cost, makes use of the resource itself, generates jobs, and reduces waste and debris on-site that otherwise must be disposed of, typically through burning. For this project, the wood went to the mill at Williams, Heber, or Phoenix, and the debris went to the power plant at Snowflake. Addressing the serious problem we face from overcrowded and dying forests requires "commercial" engagement.

As for "profit", none was made. If profit from this type work was a reasonable and common expectation and result, we would have a viable logging industry and would not be challenged as we are now with the need to rebuild and recreate a healthy forest industry capable of doing this type work.

- Shade has been reduced/eliminated along the Urban Trail. Trees have been removed. But while shade cover has been reduced from what existed prior to treatment, it still is present. It's likely that many folks enjoy the change when entering a more open and sunlit area.

- We should "slow-down" and experiment: What we are doing is part of a larger landscape than simply city-owned land. We and our partners have been engaged for nearly two decades on various jurisdictions and site conditions, and have utilized a variety of prescriptions and approaches to ensure we have a full-suite of treatments across the greater Flagstaff area. One of our principles is to avoid a homogeneous cookie-cutter approach, where everything is exactly the same. Variation across the landscape is critical to a healthy and vibrant forest. That is not to say, however, that we are reckless is our approach or that we randomly invent new ways to conduct forest treatments.

  No two sites, or treatments, are the same. With such a wide variety of agencies, organizations, and other entities involved, variation is assured. The OMNA is one piece of the northern AZ forest restoration tapestry, and what we've done on this parcel is different than what we've done on other OMNA parcels, and it won't be exactly replicated on future treatment projects.

- By cutting as we have, we have set-back true restoration and/or not achieved what Covington et al meant by an "open, old-growth style forest": According to Dr. Pete Fule`, forest ecologist and widely recognized expert with NAU's School of Forestry, the work on OMNA is among the best examples of a blended approach between hazardous fuel management and forest restoration that he's ever seen.

- We have focused on large tree removal: Removing large trees simply because we can is contrary to good stewardship and acceptable practices. They are the very trees we wish to retain – a basic principle of our program since Day 1.

  The issue may stem from what constitutes a "large tree". Some view pines of anywhere from 12-14-16-18 inch diameter as "large". Some even go so far as to insist upon caps, whereby no tree above that particular size can be cut for any reason. It's important to understand that forest ecologists, restoration specialists, and seasoned practitioners understand that imposing a diameter limit cap, especially at a mid-level , somewhat arbitrary threshold has no ecological rationale, and does nothing to alleviate fire problems, insect infestations, or improve forest health.

Such an approach also requires frequent re-entries into an area simply to keep the area from becoming choked once again. Roads would need to remain open, operational costs would be repeated, and grant funding to conduct such re-enter type work is not available.

For purposes of OMNA Section 18, our guidelines defined that any tree over 24 inches in diameter was to be retained. In addition, we committed to not cutting any tree that exhibited "old-growth" characteristics (ex: yellow bark): large tree and old growth are not synonymous. Within this area, we did cut trees over 14 inches in diameter: we never planned or committed to do otherwise.

Focusing on what was removed diverts one's attention from what has been retained and the end result - a restored forest (all components, not just trees).

- We did not mark every tree to be cut (or every tree to be retained). To achieve our goals, we elected to undertake a "Designation by Description" approach whereby we described what was to be taken, what was to be left, and the desired conditions following the work. This formed the basis for the cutting operation. As explained earlier, we marked a 40-acre demonstration area, and worked with Perkins to ensure the operators were comfortable with process, selection, and desired outcomes. Following successful completion of that, we "released" them to proceed into specific block-by-block units. Mark Brehl then continuously worked with the operators and monitored their efforts to assure we were getting what was intended. We remain extremely pleased with the results.

  (By comparison, had we marked the entire area, it would have likely delayed the start of work by up to six months, would have cost an estimated $60K (staff time, paint, vehicle expenses, etc), would have jeopardized our ability to utilize available grant funds before they expired, and resulted in little forest treatment accomplishment within the Flagstaff Watershed Protection Project footprint during the 2015 field season. As planned, city and state lands were to be the primary/sole focus of treatment operations in the 2013-15 timeframe, during which time the required environmental analysis was occurring on federal lands).

- We clear-cut areas: In general, southwestern ponderosa pine forests are seriously overstocked: tree densities today are anywhere from 50-200+ times above historical, and ecologically sustainable, levels.

  Cutting to achieve forest restoration goals and ensure resiliency does require removal of a large number of trees on any given site, often upwards of 70% or more. That may seem severe, until one realizes that at 800-1,000 trees per acre (current averages in our area), even reducing density by this amount can still leave 2-4 times as many trees as what would have been present in historical times. This can be quite a change from what one may be used to, but the snapshot of what we are accustomed to - dense ponderosa pine forests - is neither normal nor natural.

  Historical forest conditions in our area were on the order of 90% grass and only 10% trees. Today, it is nearly 100% trees and little-to-no open grasslands and understory vegetation. Specific to Section 18, our goal was to create 35% openings and 65% forests. To do so, we created openings of various sizes throughout the area - anywhere from 1/2 to 5 acres in size. This was consistent with past practices we've championed on other parcels (See Attachment #2 and #3 for details).

This is a "clear-cut", something we did not do on Section 18, nor do we have any plans to do anywhere on the OMNA.

- A review is needed before moving forward: Our forests are in-trouble. There is little professional doubt as to the accuracy of that statement. Fires, insects, climate change, and many other factors threaten their very existence.

  For the past twenty years, under constant scrutiny from the public, most recently with passage of the Flagstaff Watershed Protection Bond (and the environmental analysis and approval of the Final Record of Decision for treatments on USFS lands) we have been partners with other agencies, stakeholders and experts in the field. This on-going high level of engagement is a commitment we live every day. The science and practice, need and success, and widespread support of what has been accomplished and what is underway is well established. Reinventing-the-wheel is to delay action and invite disaster.

In Conclusion: The actions we have undertaken are in direct alignment with those of our partners and the result of a collaborative approach. It has been undertaken in a long-standing, very transparent, and public manner. Together, we are committed to creating resilient forests, protecting communities, and ensuring safe-and-effective response.

Before – June 2015

After – Sept 2015

RECOMMENDATION / CONCLUSION: This CCR is for information only. It is a joint submission from Fire, Sustainability, and Stormwater.

Attachments:

1) OMNA Section 18 Harvesting Guidelines
2) Airport Forest Treatment Project Poster
3) City Well Field Treatment Project Poster

Observatory Mesa Harvesting Guidelines:

FWPP Planned Operations – Section 18

Stand History: The majority of the Harvest Area has been harvested through numerous entries by the Arizona State Land Department over the past century. Early operations generally focused on removal of larger diameter sawtimber with several pulpwood sales occurring in the last quarter of the 20th century. Operations have resulted in fairly homogenous stands of low to marginal quality timber in the small to mid range size classes with average basal areas ranging from approximately 40-200 ft^2 BA per acre.

Treatment Goals:

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing stand densities, increasing average crown base height, and decreasing crown continuity. Create conditions that are conducive to the reintroduction of low intensity surface fire. Improve understory productivity and diversity.
2. Create a more open vigorous and diverse uneven-aged forest structure with large openings and a groupy/clumpy character resembling, though not precisely replicating, the forest structure which existed prior to the interruption of the historic fire regime. Trees will be left in groups and clumps of varying shape, size, and configuration with trees of varying number, size and age classes to create a heterogeneous forest more in line with the historic range of natural variability.
3. Improve forest health by: decreasing inter-tree competition; increasing individual tree growth and vigor; increasing age and size class diversity; reducing wildfire hazard; decreasing susceptibility to disease and insect mortality; increasing understory productivity and diversity; maintain and where possible, improve wildlife habitat.

Current Objectives:

1. Reduce risk of severe wildfire and promote restored ecosystem structure, function and process through tree harvesting activities.
2. Increase overall diversity of size classes and distribution.
3. Reduce overall canopy cover by approximately 55%, primarily as tree groups.
4. Create a tree group forest structure (approximately 45% of unit/stand/area),
5. Reduce average residual BA to vary between 60-80 ft^2 BA/A. The stand should be characterized by dense clumps (10-20%, 90-110 ft^2 BA), variable sized openings (approx 35.5% of the area), and the rest in "thinned stands" averaging 60-80 ft^2 BA/A (variability is encouraged across the thinned area).
6. Where current stand structure permits, retain tree clumps of 3-50 trees; some with interlocking crowns and multi-story structure, interspersed with openings and interspaces that more closely resembles conditions which existed prior to interruption of the historic fire regime. Clumps will be spaced at least 50ft apart with larger clumps (20-50 trees) spaced approximately 50-100ft between clumps.
7. Retain denser clumps/groups desirable for wildlife cover.

8. Create openings and increase the size of natural openings (Maximum 5 ac.)
9. Retain snags greater than 18 inches DBH and 12 feet tall unless deemed a Hazard Tree by Sale Administrator.
10. In addition, a longer-term objective is to permit establishment of natural regeneration in openings to facilitate long-term structural heterogeneity.

Cutting Guidelines:

1. Large trees will be retained where possible although trees up to 24" DBH may be removed where necessary to achieve overall desired forest structure including: encroached grasslands; within-stand openings; and within areas heavily stocked with a preponderance of large, young trees. No live yellow barked trees are permitted for removal regardless of size or condition.
2. Tree groups will occupy approximately 65% of the overall area and will range in size from 1.0-5.0 acres. Spacing between groups will typically vary between 50 to 300ft+ (allowable exceptions may occur where larger openings are desired as approved by the Sale Administrator). As conditions allow, the majority of tree groups will be arranged perpendicular to predominant winds, to reduce wildfire hazard.
3. Multiple tree clumps of 3-50+ trees of varying size will be scattered within each individual tree group, and will range from <0.1 – 2.0 acres in size. Stocking of each tree clump will vary between 40 - 140 ft² BA/acre, and most will have interlocking crowns. Some light thinning within a clump is permitted to reduce ladder fuels and achieve overall objectives. Trees outside of an identified clump but within an identified tree group will largely be removed, with some individual "link" trees retained in order to meet objectives.
4. Basal Area of tree clumps located within 0.4 miles south or west of homes will not exceed 80 ft² BA/acre to reduce the risk of torching and subsequent ember transmission.
5. A buffer zone with a lower basal area (50-70 ft² BA/A) will be located around the south and west sides of any tree clump exceeding 90 ft² BA/A, and will extend out at least 50 feet.
6. Individual tree clumps outside of and separate from a larger group may be located on small hilltops and rises.
7. Openings will comprise approximately 35% of the overall Harvest Area, will vary in size from 0.25 – 5.0 acres, and vary in shape and configuration. All trees within an opening which are less than 24 inches DBH are to be removed.
8. Irregular tree spacing and vertical diversity within-and-between the individual groups and clumps is desired.
9. Yellow barked pines, regardless of size), Gambel oak (regardless of size), juniper species (regardless of size), fir trees (regardless of size), pines greater than 24 inches DBH, and all large snags (≥18" DBH and ≥12' tall) will be retained.
10. Preserve all large (greater than 18" diameter at mid-point of log) down and dead logs in original location and condition during cutting and skidding operations

Factors to consider for other trees to retain include:

- Trees in the larger size classes (≥ 16" DBH) except where necessary to limit meadow encroachment, create or maintain intra-stand openings in areas of high BA resulting from the preponderance of large young trees;
- Dominant and co-dominant blackjack pines with good tree form and vigor;
- Any size class (≥ 1" DBH), so as to increase vertical diversity;
- Those forming tree clumps around trees ≥24" DBH;
- Those not in the most common size classes (≤ 5" DBH and ≥ 16" DBH), and
- Trees with obvious wildlife nesting activity (squirrel and/or bird nests);
- Trees/clumps located on small rises/hilltops;
- Trees of poor form (if no other choices exists or special "character;"
- Trees which are fading if average snag per acre count is below 4 per acre.

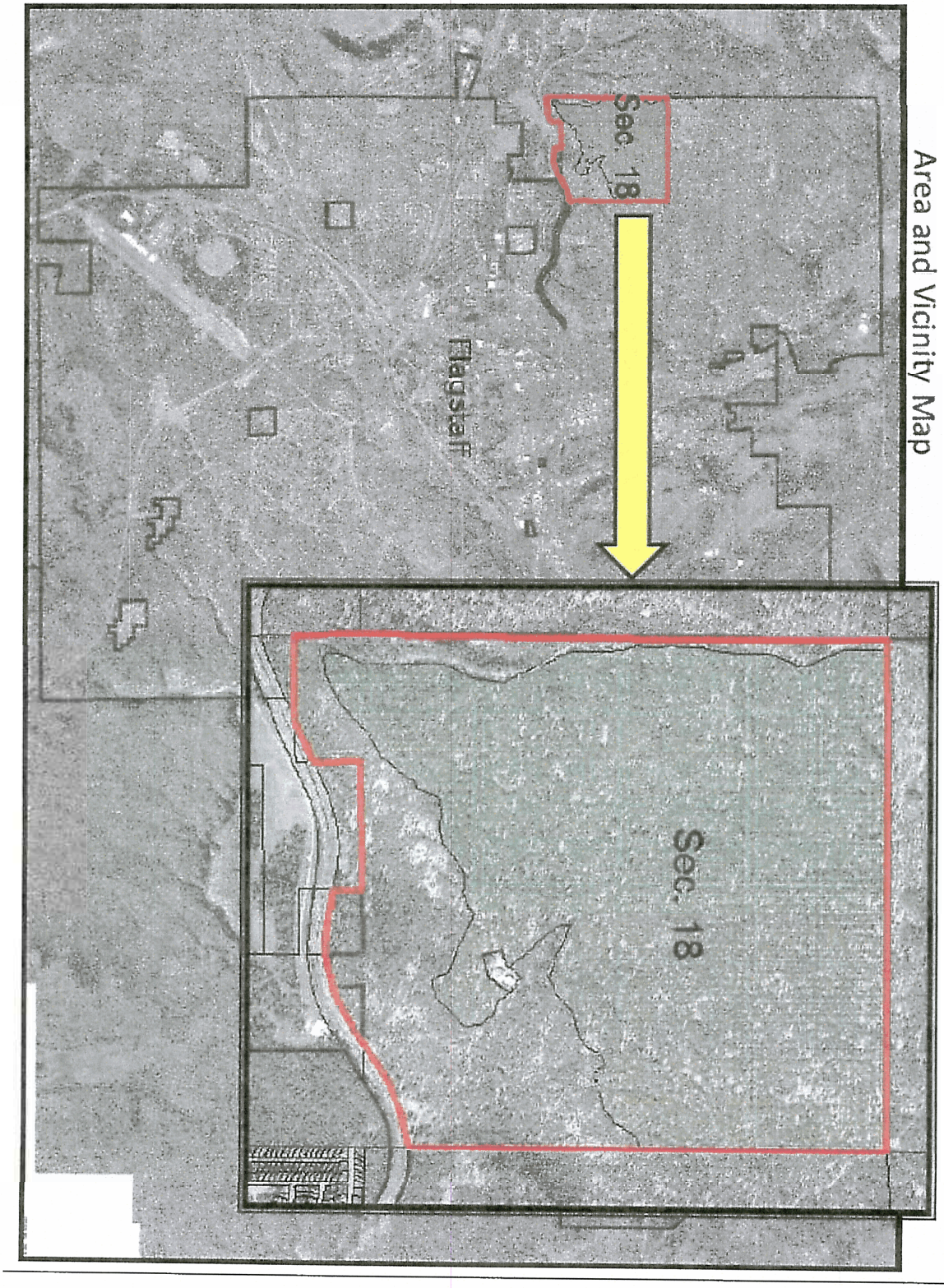
Factors to consider for trees to remove include:

- Trees with obvious insect or disease infestation;
- Trees with Dwarf Mistletoe Ratings of 3+ (DMR3+);
- Hazard Trees as determined by the Sale Administrator;
- Trees of the most dominant size classes;
- Trees damaged or of poor form;
- Trees which are "fading" or suppressed trees exhibiting low vigor;
- Trees surrounding oak clumps.

Special Notes:

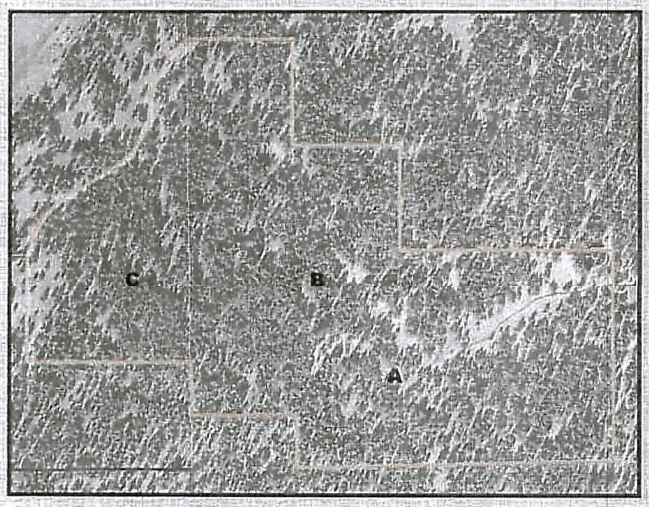
- No skidding/driving on Loop Trail or FUTS Trail (Single perpendicular crossing only as necessary and approved by Sale Administrator).
- No cutting permitted within 650 ft. of homes between 1700 – 0800.
- No landings, log decks or slash piles are to be located within 600 ft. of any home.
- Locate piles in open areas and in such a fashion to drastically reduce chance of scorch.
- All operations will be conducted during either dry or frozen soil conditions.
- Road improvement/landings to be kept to an absolute minimum.
- No piling/landings on the water line or gas line.
- Contractor must only cross gas and water utility lines at designated crossings and perform appropriate and approved protection measures where needed.
- All Standard Specifications contained within the contract shall be adhered to.

The Purchaser shall protect all known survey and reference monuments, witness and bearing trees, telephone and power lines, fences, ditches and other improvements against damage or destruction during the Purchaser's operations. If damage or destruction does occur, the Purchaser shall be responsible for immediate restoration of the improvements to a condition satisfactory to the owner.

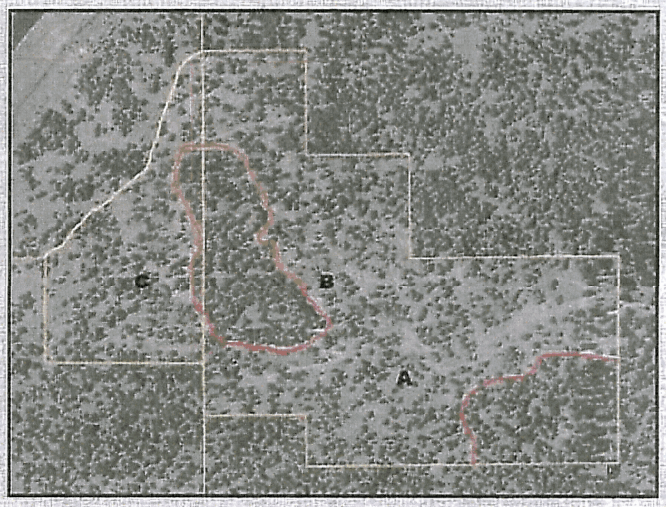

Area and Vicinity Map
Sec. 18
Flagstaff
Sec. 18

Airport Forest Treatment Project—Phase I

Aerial and ground level views of the forest structure before and after treatment.



An aerial view of the property in 2007, prior to treatment of Phase I in 2010.



An aerial view of the property in 2010 after treatment of Phase I. Areas outlined in RED show areas left more dense to provide winter habitat for Abert squirrels.

Point A. Before Treatment

Point B. Before Treatment

Point C. Before Treatment

Point A. After Treatment

Point B. After Treatment

Point C. After Treatment

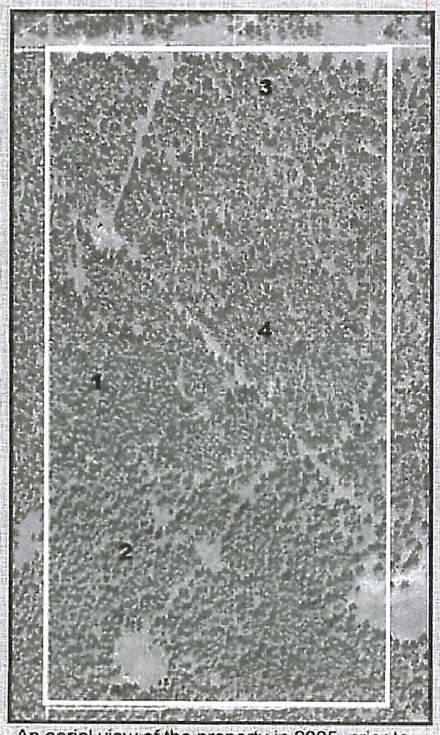
The Flagstaff Fire Department (FFD) received funding from the AZ State Forestry Division to conduct forest restoration treatments on 300 acres of City-owned property around Pulliam Airport. The *Airport Project* was planned and implemented to compliment the adjacent *Mountainaire Project*, a cooperative venture of the Greater Flagstaff Forests Partnership (GFFP) and U.S. Forest Service.

Depicted above is a 134 acre site whose objectives included reducing wildfire risk, increasing health of the forested area, and establishing/protecting critical habitat (Winter Core Areas) for Tassel Eared Squirrels.

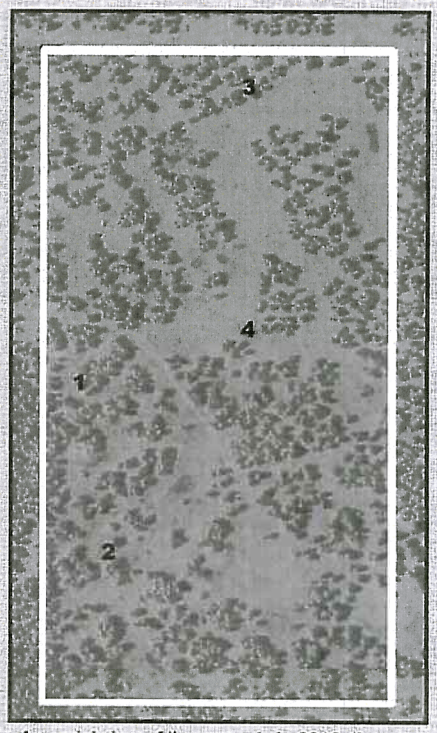
FFD collaborated with AZ Game and Fish, staff and students from the Ecological Restoration Institute (ERI) and School of Forestry (SoF) at Northern Arizona University (NAU), and the GFFP, in this effort. Design and initial implementation of the *Airport Project* started in the fall of 2009, with overall completion of the project, to include application of prescribed fire to reduce debris, reduce fire threat, and recycle nutrients, expected to occur in 2013.

City Well Field Forest Treatment Project

Aerial and ground level views of the forest structure before and after treatment.



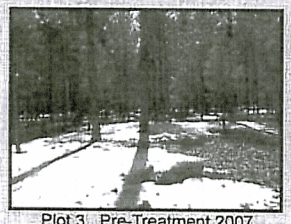
An aerial view of the property in 2005, prior to treatment in 2007.



An aerial view of the property in 2010, three years after treatment.

Plot 1. Pre-Treatment 2007

Plot 1. Post-Treatment 2010



Plot 3. Pre-Treatment 2007

Plot 3. Post-Treatment 2010

Plot 2. Pre-Treatment 2007

Plot 2. Post-Treatment 2010

Plot 4. Pre-Treatment 2007

Plot 4. Post-Treatment 2010

In 2007, the Flagstaff Fire Department, in cooperation with the Greater Flagstaff Forests Partnership, implemented a forest thinning treatment to restore natural ecosystem structure, function, and composition on the 80 acre city-owned well field parcel located one mile south of The Arboretum at Flagstaff. Tree thinning operations were designed to emphasize retention of large ponderosa pine trees and all Gambel oak, the creation of multiple openings, and the preservation of small tree groups and clumps with interlocking crowns, replicating conditions that more closely mirrored those which existed prior to the interruption of the historic fire regime in the late 1800's.

The project successfully resulted in a forest stand with greater spatial and size class diversity, meeting all post-operational objectives Tree health, growth and vigor are expected to improve along with an increase in wildlife use, groundcover productivity and species richness. Wildfire risk has been drastically reduced and periodic application of prescribed fire will be used to maintain and enhance current conditions.